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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,167	03/17/2004	Michael A. Halter	16990-53331-B	4142

7590 03/28/2006
J. Charles Dougherty
Wright, Lindsey & Jennings LLP
Suite 2300
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Little Rock, AR 72201

EXAMINER

BARNES, SETH W

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/802,167	Applicant(s) HALTER, MICHAEL A.	
	Examiner Seth Barnes	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 10-20 in the reply filed on 23 January 2006 is acknowledged.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 17 March 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Chen US 6,531,328 B1.

Chen discloses in Figures **3-18** and column **3**, line **41** – column **6**, line **15** a method of constructing a light system comprising a semiconductor wafer and a LED die,

Regarding **claim 1**, Chen discloses the method comprising the steps of:

(a) etching the semiconductor wafer to form a micro-reflector cavity (Fig. **7** and col. **4**, lines **41-46**) and

(b) mounting an LED die (3) within the micro-reflector cavity (col. 5, lines 24-25)

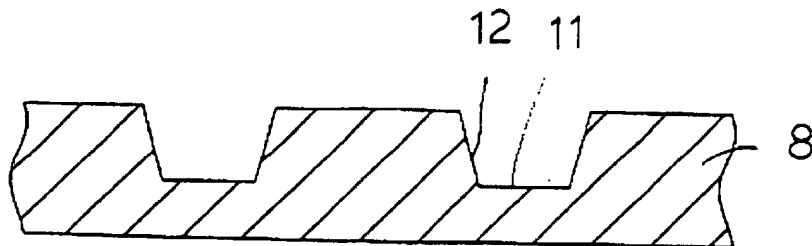


FIG. 7

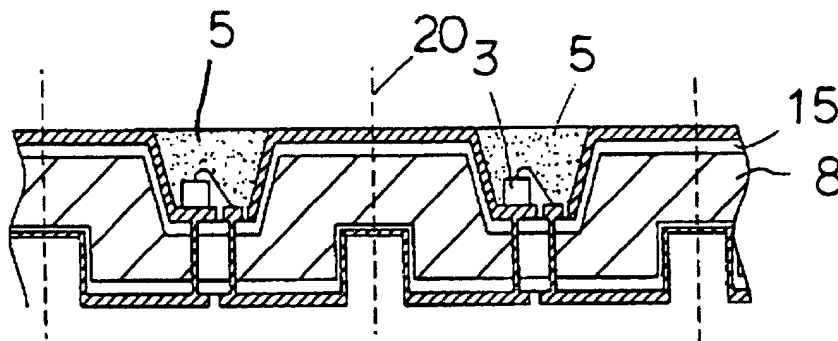


FIG. 11

Regarding **claim 11**, Chen discloses in Fig. 11 and col. 5, lines 12-17, the above method further comprising the steps of coating the micro-reflector cavity with a conducting material (16), and connecting the LED to the conducting material.

It is inherent that one of a cathode and anode attached to the LED die to the conducting material (positive 17A and negative 18A electrodes).

Regarding **claim 12**, Chen discloses in Fig. 7, the method above wherein the step of etching the semiconductor wafer is performed with an etching agent that acts in an anisotropic manner with respect to the semiconductor material (8)

Regarding **claim 13**, Chen discloses in column 4, lines 45-46, the method above wherein the semiconductor material is silicon, and the etchant material is a hydroxide.

Regarding **claim 14**, Chen discloses in column 4, lines 45-46, the method above wherein said etchant material is potassium hydroxide.

Regarding **claim 15**, Chen discloses in Fig. 7, the method of claim 11, wherein the micro-reflector cavity formed in said etching step is shaped as an inverted, truncated pyramid.

Regarding **claim 17**, it is well know in the art that LED die comprise of RGB LEDs.

Regarding **claim 18**, disclose in Fig. 11, the method above wherein said etching step comprises the formation of a plurality of micro-reflector cavities such that the plurality of micro-reflector cavities form a cluster on said wafer.

Regarding **claim 19**, Chen discloses in Fig. 11, the method of claim 12, further comprising the step of encasing the LED die with an encapsulant (5).

Regarding **claim 20**, Chen discloses in Fig. 11, the method of claim 12, wherein said encapsulant is an optical gel (encapsulating resin, col. 5, lines 25-27). It is inherent that the encapsulating resin disclose by Chen has a refractive index and the word high is an ambiguous term.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen US 6,531,328 B1.

Chen discloses the method of claim 11 as rejected above and wherein the reflector cavity formed in said etching step has opposing sides but does not disclose wherein the angle formed between the opposing sides is about 71°. However, it is obvious that the angle formed between the opposing sides during the etching step is about 71°. It is well known in the art that using a hydroxide such as TMAH, which is an obvious substitution to KOH, to etch silicon will result in an angle of about 71°.

Conclusion

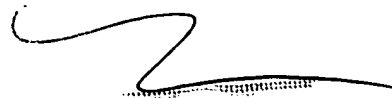
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seth Barnes whose telephone number is (571) 272-6008. The examiner can normally be reached on Monday thru Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SWB
13 March 2006



Mary Wilczewski
Primary Examiner